REMARKS

In the Office Action, the Examiner rejected claims 1-32. By this Response, Applicants have amended claim 1. Applicants submit that the amendment to claim 1 is clerical in nature and that such amendment does not narrow the scope of the claim. In view of following remarks, Applicants respectfully request reconsideration and allowance of all pending claims.

Claim Rejections under Doctrine of Obviousness-Type Double Patenting

In the Office Action, the Examiner rejected claims 1-32 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No. 7,035,159 (hereinafter referred to as "the Janzen reference"). Further, the Examiner provisionally rejected claims 1-32 as being unpatentable over claims 1-30 of copending Application No. 10/816,241 (hereinafter referred to as "the '241 application"). Although Applicants do not necessarily agree with the Examiner's assertion, Applicants are amenable to filing a terminal disclaimer upon allowance of the claims in the present application. Any such filing will, of course, be affected by any restrictions or election requirements made by the Examiner during the course of prosecution. Accordingly, Applicants respectfully request that the Examiner hold in abeyance the double-patenting rejection until the present claims are determined to be allowable.

Claim Rejections under 35 U.S.C. § 103(a)

The Examiner rejected claims 1-5 and 21-24 under 35 U.S.C. § 103(a) as being unpatentable over Trick (U.S. Patent No. 5,995,405, hereafter referred to as "Trick") in view of Abrahams et al. (U.S. Publication No. 2004/0078454, hereafter referred to as "Abrahams") and further in view of Nerl (U.S. Publication No. 2002/0016897, hereafter referred to as "Nerl"); rejected claims 7-11 and 25-32 under 35 U.S.C. § 103(a) as being unpatentable over Trick in view of Abrahams; rejected claims 6 and 12 under 35 U.S.C. § 103(a) as being unpatentable over Trick in view of Abrahams and further in view of allegedly admitted prior art; and rejected claims 13-20 under 35 U.S.C. § 103(a) as being unpatentable over Abrahams reference in view of Nerl. Applicants respectfully traverse these rejections.

Legal Precedent

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (B.P.A.I. 1979). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d. 1430 (Fed. Cir. 1990). Accordingly, to establish a *prima facie* case, the Examiner must not only show

that the combination includes *all* of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985).

Claims 1-5 and 21-24 Are Not Obvious Over Trick in View of Abrahams and Nerl

Computer device manufacturers design memory devices to operate within a predetermined temperature range. Specification, p. 2, ll. 19-20. Given that the memory devices in a computer system employ electric current to perform their intended functions, the amount of heat in the device is a function of the flow of current through the device. Specification, p. 3, ll. 4-7. Accordingly, memory devices are typically accompanied by data sheets specifying operating currents for the devices in various modes and conditions. Specification, p. 3, ll. 21-23. These data sheets correspond to a given type of memory chip and represent the worst case scenario for that particular type of device. Specification, p. 4, ll. 7-9. Any given memory device can often operate at currents 15-40% outside of the data sheet values. Specification, p. 3, ll. 10-12. Therefore, by implementing the data sheet values, the full extent of the device's capabilities are not being exploited. Specification, p. 3, ll. 12-14.

Accordingly, independent claims 1 and 21 of the present application recite the utilization of "operating currents *uniquely* corresponding to a *lot* in which the [plurality of] volatile memory devices were manufactured," rather than the general device-specific

operating currents that are typically listed on data sheets. (Emphasis added.) By implementing the lot-specific operating current values, claims 1 and 21 provide a more accurate technique than the typical data sheet-based methods. Specification, p. 12, ll. 24-25, p. 13, l. 1. Consequently, the method of claim 1 and the memory module of claim 21 result in a more efficient use of the specific memory device's capabilities.

Applicants respectfully submit that neither Trick, Abrahams, nor Nerl, alone or in combination, disclose each and every feature of independent claims 1 and 21. Specifically, none of the aforementioned references teaches utilizing operating currents *uniquely* corresponding to a *lot* in which the memory devices were manufactured, as recited in claims 1 and 21.

Regarding Trick, the Examiner asserted that Trick teaches utilizing operating parameters uniquely corresponding to a lot in which the volatile memory devices were manufactured. Office Action, p. 4. Specifically, the Examiner asserted that the electrically erasable programmable ROM (EEPROM) disclosed in Trick is associated with In Line Memory Modules (IMMs) and, therefore, identifies the lot of memory devices. *Id.* Applicants respectfully disagree and respectfully submit that Trick does not teach operating parameters uniquely corresponding to a lot in which the volatile memory devices were manufactured, as asserted by the Examiner.

Rather, Trick discloses a mechanism for adapting an IMM so that it may be configured to accommodate a standard EEPROM or a "daisy chain" EEPROM. Trick, col. 2, ll. 21-25. Trick is not concerned with improving the accuracy of determining operating parameters of memory devices, specifically the operating current, as in the present application. Indeed, Trick discloses in general terms the functions of the EEPROM, but does not discuss the operating parameters of the IMM. Trick, col. 1, ll. 43-56. To the extent that Trick discloses that configuration information is stored on the EEPROM, Trick fails to teach that the configuration information is lot-specific configuration information. *See id.* at col. 1, ll. 31-34. Therefore, Trick does not disclose the utilization of "operating currents uniquely corresponding to a lot in which the [plurality of] volatile memory devices were manufactured," as recited by independent claims 1 and 21.

Further, Applicants assert that the Examiner's attempt to remedy the deficiencies of Trick by citing Abrahams is insufficient. The Examiner merely relied on Abrahams for its alleged disclosure of reading operating current values from a non-volatile memory device on a memory module. Office Action, p. 5. To the extent Abrahams may disclose the reading of operating current values, nowhere does Abrahams teach or suggest that those operating current values "uniquely correspond[] to a lot in which the volatile memory devices were manufactured," as recited in independent claims 1 and 21. For example, Abrahams provides that "[t]he operational parameters may be *specific to each type of component*. For example, disk drives may have different operational parameters

than array controllers." Abrahams, p. 2, ¶ 23 (emphasis added). Therefore, the specification in Abrahams teaches utilizing parameters specific to a particular type of component and not lot-specific parameters. In fact, Abrahams is devoid of any mention of lot-specific parameters such as lot-specific current values. The inaccuracy and inefficiency associated with using values associated with a particular type of component is exactly the problem that implementation of the present invention is designed to eliminate. Therefore, Abrahams does not disclose the utilization of "operating currents uniquely corresponding to a lot in which the [plurality of] volatile memory devices were manufactured," as recited in claims 1 and 21.

Applicants further assert that Nerl fails to remedy the deficiencies of either Trick or Abrahams. Indeed, the Examiner merely referred to Nerl for its alleged teaching that it is well known in the art that a DIMM can be an FRU. Office Action, p. 5. Accordingly, even if Nerl disclosed what is asserted by the Examiner, it does not remedy the deficiencies discussed above.

In view of the remarks set forth above, Applicants respectfully submit that independent claims 1 and 21 and their dependent claims are not rendered obvious by the cited combination. Accordingly, Applicants request withdrawal of the Examiner's rejection and the allowance of claims 1-5 and 21-24.

Claims 7-11 and 25-32 Are Not Obvious Over Trick in View of Abrahams

Independent claims 7, 25, and 29 of the present application recite the utilization of "operating currents uniquely corresponding to each of the plurality of memory devices," rather than the general device-type specific operating current currents that are typically listed on data sheets. By implementing the operating currents specific to each unique memory device, claims 7, 25, and 29 provide a more accurate technique than the typical data sheet-based methods. Specification, p. 12, ll. 24-25, p. 13, l. 1. Consequently, the method of claim 7, the memory module of claim 25, and the computer system of claim 29 result in a more efficient use of the specific memory device's capabilities.

Applicants respectfully submit that neither Trick nor Abrahams, alone or in combination, disclose each and every feature of independent claims 7, 25, and 29. Indeed, given that the operating currents specific to each memory device recited in independent claims 7, 25, and 29 offer the same advantages as the lot-specific values utilized in independent claims 1 and 21, Applicants rely on the remarks presented above to demonstrate that neither Trick nor Abrahams teach the utilization of operating currents *uniquely* corresponding to *each* of a plurality of memory devices. Accordingly, Applicants request withdrawal of the Examiner's rejection and allowance of claims 7-11 and 25-32.

Claims 6 and 12 Are Not Obvious Over Trick in View of Abrahams and the Allegedly Admitted Prior Art

In the rejection of dependent claims 6 and 12, the Examiner asserted that Trick in view of Abrahams and further in view of the allegedly admitted prior art discloses all of the recited features. However, despite the Examiner's assertion, Applicants respectfully assert that the rejection is deficient for at least two reasons. First, Applicants submit that no prior art has been *admitted* in the present application. Secondly, even assuming the background section is prior art, which Applicants do not admit, it does not remedy the deficiencies of Trick and Abrahams.

First, Applicants note that the present application does not *admit* any prior art. Pursuant to M.P.E.P. § 2129, the statements of an applicant can only be used as an admission if the applicant explicitly admits that something is "prior art." For example, where the specification identifies work done by another as "prior art," the subject matter so identified is treated as admitted prior art. *In re Nomiya*, 509 F.2d 566, 571, 184 U.S.P.Q. 607, 611 (C.C.P.A. 1975). However, simply *mentioning* something in the paragraphs of the "Description of the Related Art" section, which is herein referred to as the "background section," is *not* an explicit admission. Indeed, the first paragraph of the background section specifically indicates that statements in the background section should *not* be read as admissions of prior art. *See* Application, p. 1, ll. 17-18. Accordingly, the passages relied upon by the Examiner and alleged to be prior art are, in fact, not an admission of prior art by Applicants. Therefore, the Examiner has improperly

asserted that the passages are prior art and improperly relied upon these passages against claims 6 and 12.

Second, even assuming the background section is prior art, which Applicants do not admit, it does not remedy the above-discussed deficiencies of Trick and Abrahams. The Examiner relied on the allegedly admitted prior art for the teaching of throttling the memory. However, the allegedly admitted prior art does not obviate the deficiencies of Trick and Abrahams discussed above with reference to independent claims 1 and 7. Accordingly, Applicants submit that Trick, Abrahams, and the allegedly admitted prior art, alone or in combination, do not disclose each and every feature of dependent claims 6 and 12.

Accordingly, Applicants respectfully request withdrawal of the rejection of claims 6 and 12 under 35 U.S.C. § 103.

Claims 13-20 Are Not Obvious Over Abrahams in View of Nerl

Rejection of Claim 13

In accordance with embodiments of the present techniques, memory devices may be individually tested such that device-specific operating current values uniquely corresponding to each memory device can be recorded and stored in a database. Specification, p. 13, ll. 20-23. In one embodiment, the operating current values in the

database may be used during fabrication of a memory module wherein the database is accessed during fabrication and a non-volatile memory device may be uniquely programmed in accordance with the specific operating current values for the particular memory devices on the memory module. Specification, p. 13, l. 13 – p. 14, l. 4. After fabrication and programming of the non-volatile memory device, a memory module can be shipped for implementation in a system and operating current values may be accessed by the system from the non-volatile memory device such that the system can be configured to operate optimally within the capabilities of the particular memory devices. Specification, p. 14, ll. 4-9.

Accordingly, claim 13 recites a method of manufacturing a memory module comprising, *inter alia*, "measuring operating current values in each of a plurality of volatile memory devices;" and "storing each of the operating current values corresponding to each of the volatile memory devices in a non-volatile memory device."

In the rejection of claim 13, the Examiner stated that Abrahams discloses "measuring operating current values in each of a plurality of memory devices (lines 13-15 of page 1)." Office Action, p. 13. The Examiner further stated that Abrahams discloses "storing each of the operating current values corresponding to each of the plurality of memory devices in a non-volatile memory device." *Id.* Applicants respectfully disagree with the Examiner's assertions regarding Abrahams.

Claim 13 recites measuring operating current values in each of a plurality of volatile memory devices and storing each of the operating current values in a non-volatile memory device. While Applicants agree that Abrahams does teach storing operational parameters in a non-volatile memory device, these operational parameters are specific to a type of component, such as those found on a component's data sheet. Abrahams, p. 2, ¶ 22. The operational parameters that may be stored on the non-volatile memory device are not the operating current values that were measured for each of a plurality of volatile memory devices. Indeed, to the extent Abrahams discloses the measuring of operational parameters, Applicants respectfully submit that Abrahams discloses the measuring of the current operating conditions of the component. Abrahams, p. 1, ¶ 11. The current operating conditions of the component then may be compared to the operational parameters for a type of component that may be stored in the non-volatile memory. *Id.* Accordingly, Abrahams does not disclose measuring operating current values in each of a plurality of memory devices and storing each of the operating current values in a non-volatile memory device.

Applicants further assert that Nerl fails to remedy the deficiencies of Abrahams. Indeed, the Examiner merely referred to Nerl for its alleged teaching that it is well known in the art that a DIMM can be an FRU. Office Action, p. 14. Accordingly, even if Nerl disclosed what is asserted by the Examiner, it does not remedy the deficiencies discussed above.

In view of the remarks set forth above, Applicants respectfully submit that independent claim 13 and its dependent claims are not rendered obvious by the cited combination. Accordingly, Applicants request withdrawal of the Examiner's rejection and allowance of claims 13-16.

Rejection of Claim 17

Claim 17 recites, *inter alia*, "measuring operating current values in each of a plurality of volatile memory devices, wherein the plurality of volatile memory devices correspond to a single manufacturing lot; calculating average operating current values for the manufacturing lot;" and "storing the average operating current values in a non-volatile memory device."

As discussed above with respect to the rejection of claim 13, Abrahams does not disclose measuring operating current values in each of a plurality of volatile memory devices. Indeed, to the extent Abrahams discloses the measuring of operational parameters, Applicants respectfully submit that Abrahams discloses the measuring of the current operating conditions of the component. Abrahams, p. 1, ¶ 11. Further, nowhere does Abrahams disclose that the operating current values are measured for a plurality of volatile memory devices that correspond to a single manufacturing lot. Accordingly, Abrahams does not disclose measuring operating current values in each of a plurality of volatile memory devices, wherein the plurality of memory devices correspond to a single manufacturing lot.

Moreover, in contrast to the present claims and as admitted by the Examiner, Abrahams also does not disclose "calculating *average* operating current values for the manufacturing lot" and "storing the *average* operating current values in a non-volatile memory device," as recited by independent claim 17. *See* Office Action, p. 14. Rather, the Examiner argues that "one of ordinary skill in the art would have been motivated to store average current corresponding to the lot in the non-volatile memory depending on his design choice." *Id.* Applicants respectfully disagree and submit that the Examiner has not demonstrated a "convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985). Indeed, as previously mentioned, Abrahams is devoid of any disclosure regarding lot-specific parameters, such as the average operating currents values for the manufacturing lot of claim 17. Rather, to the extent Abrahams discloses that operating parameters are stored in a non-volatile memory, Abrahams discloses the use of general device-specific parameters. For example, Abrahams discloses that "[t]he operational parameters may be *specific to each type of component*." Abrahams, p. 2, ¶ 23 (emphasis added). In view of this teach of Abrahams, there is no convincing line of reasoning as to why one of ordinary skill in the art would modify Abrahams in the manner recited in independent claim 17.

Applicants further assert that Nerl fails to remedy the deficiencies of Abrahams. Indeed, the Examiner merely referred to Nerl for its alleged teaching that it is well known

in the art that a DIMM can be an FRU. Office Action, p. 14. Accordingly, even if Nerl disclosed what is asserted by the Examiner, it does not remedy the deficiencies discussed above.

In view of the remarks set forth above, Applicants respectfully submit that independent claim17 and its dependent claims are not rendered obvious by the cited combination. Accordingly, Applicants request withdrawal of the Examiner's rejection and allowance of claims 17-20.

Authorization for Extensions of Time and Payment of Fees

Applicants do not believe that any fees are due at this time. However, if any fees, including fees for extensions of time and other reasons, are deemed necessary to advance prosecution of the present application, at this or any other time, Applicants hereby authorize the Commissioner to charge such requisite fees to Deposit Account No. 06-1315; Order No. MICS:0103/FLE/MAN (No. 02-1327). In accordance with 37 C.F.R. § 1.136, Applicants hereby provide a general authorization to treat this and any future reply requiring an extension of time as incorporating a request thereof.

Conclusion

Applicants respectfully submit that all pending claims are in condition for allowance. However, if the Examiner wishes to resolve any other issues by way of a telephone conference, the Examiner is kindly invited to contact the undersigned attorney at the telephone number indicated below.

Respectfully submitted,

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